Oracle Discoverer™

Explore New Dimensions

Oracle Discoverer 3.1 is a key component of Oracle's comprehensive solution for Decision Support. It is an intuitive, open, ad hoc query, reporting, analysis and web publishing tool that enables business users at all levels of the organization to gain immediate access to information from relational data warehouses, data marts or online transaction processing systems. The User Edition provides superior ease of use, unsurpassed performance, integration with other desktop products and powerful data exploration via drill anywhere capabilities, pivoting and graphing. The Administration Edition provides an easy-to-use interface for the setup and low maintenance of the powerful server based meta layer (End User Layer™). The End User Layer can be created from any relational meta data repository and hides the complexity of data structures and drill relationships from business users who need to focus on business not data issues.

Figure 1. Discoverer Architecture

Superior Ease of Use

As a result of extensive usability testing and end user input from the outset of development, Discoverer is recognized as the easiest to use ad hoc query, reporting and analysis tool in the market today. Gain immediate access to information using the advanced step-by-step wizard interface (Figure 2). Extensive help, cue cards and industry specific quick tours provide additional assistance. The sophisticated, server-based End User Layer completely removes database and SQL complexity from users by presenting database terminology in business language. Enable business users to rapidly create reports taking advantage of pre-defined conditions and calculations available in the End User Layer. Share report results with other desktop applications. Use Query Prediction to determine how long a report will take to run and if it takes

too long, immediately schedule the report to run at a later time. Use the powerful integrated graphing to show data trends and exceptions. Drill down through graphs to view specific trends more closely.

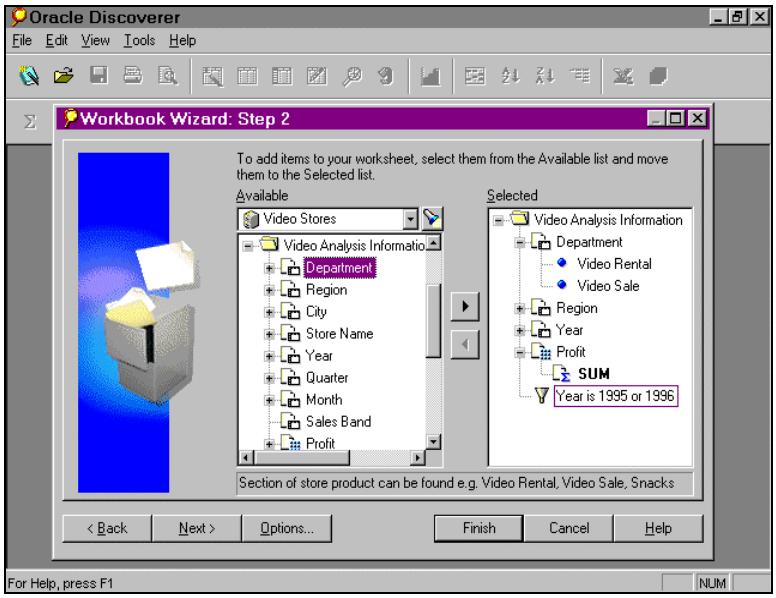


Figure 2. Superior Ease of Use - Wizard Interface

High Performance Decision Support

Discoverer provides maximum performance for ad hoc queries, drill and pivoting and leverages Oracle7 and Oracle8 query technology such as bitmapped indexing and parallel queries. Use the expert SQL query engine to dynamically generate performance optimized SQL queries. Non-blocking queries enable other tasks to be run whilst a query is executing therefore improving productivity for business users. The incremental array fetch provides users with immediate response times and reduces network traffic.

Advanced Query Prediction

Like all other tools, Discoverer provides a resource governor to stop long running queries and control resource usage. In addition, Discoverer provides a unique query prediction capability that determines how long the report will take *before* it is run. (Figure 3). This removes frustration and gives direct control to the user over which queries to run and when to run them. If a query will take too long to run on-line, schedule it to run at a later point in time using the query prediction dialog or the scheduling utility.

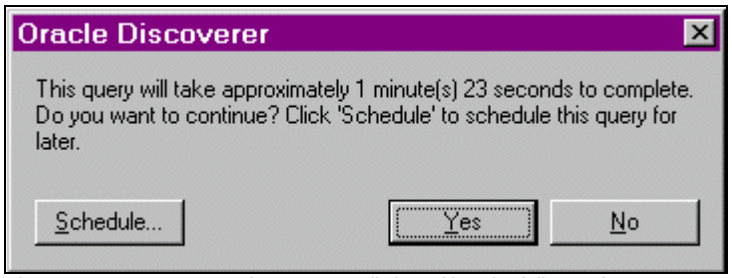


Figure 3. Resource Control - Query Prediction with Scheduling option

Intelligent Summary Redirection and Summary Management

In a data warehouse, large volumes of data are pre-summarized to improve performance. When requesting information from a large volume detail table, Discoverer transparently redirects your requests to the pre-summarized table. Using a sophisticated algorithm, Discoverer does not require exact matches between your query request and the summarized tables available. It uses the closest match that exists, and seamlessly aggregates within the hierarchy. Discoverer reduces the number of summary tables needed and improves query performance by orders of magnitude. Discoverer automatically identifies candidate summary tables which are generated, populated and scheduled at the touch of a button.

ResultsBase Architecture

The ResultsBase client cubic cache compresses and indexes retrieved data to enable rapid drilling and rotation on the client, without repeated access to the database server.

Integration

Take advantage of Discoverer's tight integration with the Oracle database to simplify security, scalability, data access, drill out to external applications stored in the database, batch scheduling, query prediction, automatic summary management and meta data creation.

Seamlessly integrate with Oracle's complimentary products for decision support solutions : Oracle Reports and Oracle Express for advanced reporting and analysis functionality; Oracle Designer/2000 for database and data warehouse design and generation management.

Use Discoverer to generate reports against Oracle Applications data using pre-defined business views or the Applications Data Warehouse.

Open Access

Export reports to an extensive number of common file formats, such as HTML, XLS, TXT, to enable integration of report data with other desktop application tools. Access non-Oracle databases using ODBC. Send reports to other users via a MAPI compliant email system. Use native drivers to provide business user reporting against Rdb databases.

Flexible Warehouse Exploration

Use the Discoverer drill anywhere and pivoting capabilities to explore the information in your data warehouse. The drill architecture in Discoverer allows slice-and-dice of data to view results in different ways, giving a complete and accurate picture of the business without writing complex SQL.

Low Maintenance End User Layer

Use the new, intuitive End User Layer Management Utility to create and delete End User Layers and the Discoverer Tutorial. Take advantage of the easy, wizard driven interface of the Administration Edition to make query building and analysis even easier for business users.

Default Single Button Load

Setup and on-going maintenance of the End User Layer is minimal and less time consuming as a result of the extensive defaulting, wizard interface and single button load option (Figure 4).

Designer/2000™ Integration

Protect your investment in Oracle Designer/2000 by automatically loading definitions from Designer/2000 into the End User Layer. Ensure one central source system for all data definitions in Designer/2000 and use the powerful refresh option to update Discoverer and keep consistent meta layers.

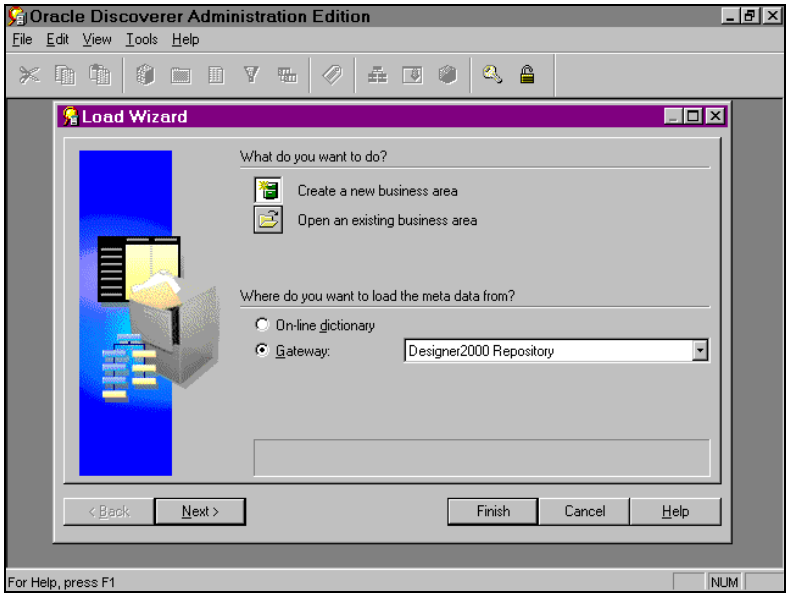


Figure 4. Low Maintenance End User Layer - Default Load Options

Open Meta Data Access

Reduce the work involved in creating business areas by reusing existing relational meta data sources. Use the End User Layer Gateway to access diverse meta data repositories from a single interface. Ensure one central source system for all data definitions and use the powerful refresh option to update Discoverer and keep consistent meta layers.

Server Based Scalability and Security

Leverage the power of the centralized database server to provide scalability and security. Define folders based on SQL statements to provide users with even greater flexible data access. Reduce administration time further when utilizing the unique, automatic summary table maintenance feature.

User Edition - Ad hoc Query, Reporting, Analysis and Web Publishing

Discoverer empowers business users to create reports and to perform powerful analysis without understanding SQL or database structures. The End User Layer is the translation mechanism that provides this functionality.

Create Powerful Queries

Building queries with the User Edition is a straightforward and intuitive task. Select the data required and alter the layout of the worksheet directly by dragging and dropping. Build conditional filters, percentages, totals and calculated items using the intuitive step-by-step wizard interface. Never worry about data types, parentheses, function names or data values.

Comprehensive Reporting

Use standard report templates (tabular, cross-tabular, group sort, and master detail) to satisfy business requirements. Bring data to life visually using a variety of font styles, sizes, foreground and background colors applied to headings and data. Include worksheet titles that contain bitmaps, page numbering, conditions and parameters to easily identify the data set a report refers to.

Exception Reporting

Place exception bands on large data sets to easily identify ranges of interest and produce a traffic light effect by replacing data with colors.

Batch / Scheduled Reporting

Use Discoverer's server side Batch facility to schedule a report to be run at a later date and time. (Figure 5). Run the report in batch using a menu option or elect to schedule a report when Discoverer's sophisticated query prediction mechanism warns it is likely to take too long to run on-line. View and delete results using the Scheduling Manager. Keep any number of copies of the report and chose to expire results after a pre-defined number of days. The Administrator has full control over the number of reports retained, the default expiration time for reports, the time period within which a user can run a report and whether a user can only run reports in batch.

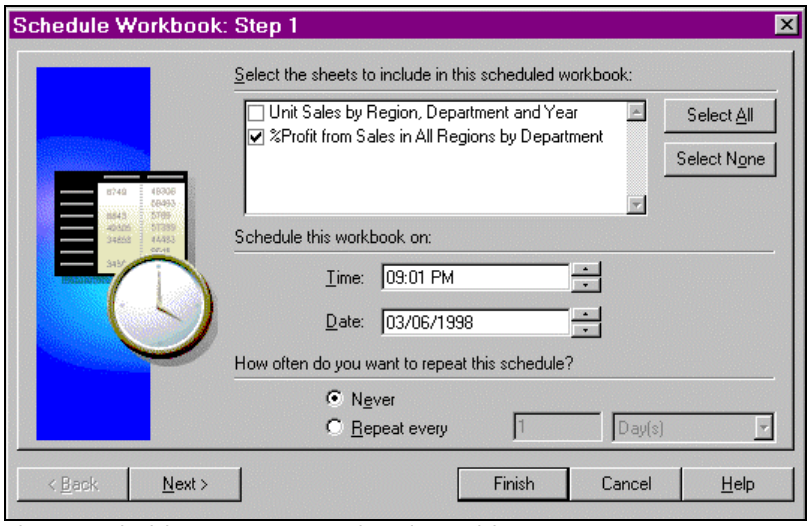


Figure 5. Schedule Reports to run at a later date and time

Enterprise Wide Reporting

Discoverer's extensive export options enable a report to be converted into Oracle Reports .RDF *(Reports Definition Format)* and Adobe .PDF *(Portable Document Format)* formats, extending business user queries for enterprise wide reporting.*(Figure 6.)* Once in Oracle Reports format, use the Reports Server to enable generation of dynamic HTML.

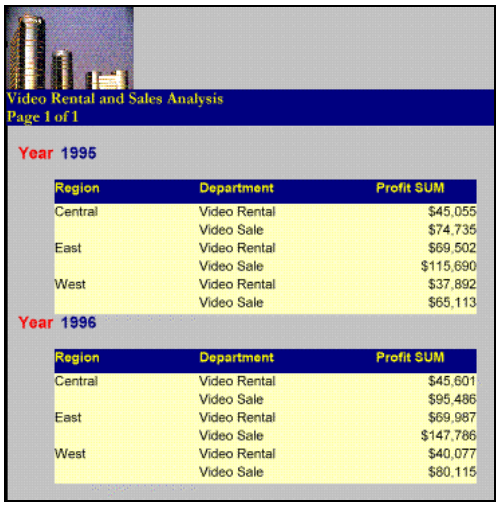


Figure 6. Enterprise Wide Reporting using Oracle Reports

Gateway to Advanced Analysis

Use Discoverer's export to Oracle Express to enable a report to be exported and used by Express Analyzer or Express Objects for more sophisticated analysis such as forecasting, budgeting, modeling and trend analysis.

Distribute Reports

Discoverer enables reports to be sent to other users if a MAPI compliant email system is in use. (Figure 7.) Send reports as a Discoverer attachment, an attachment of another file format supported by Discoverer such as Excel, CSV, PRN, HTML, TXT or send the report as part of the email message body.

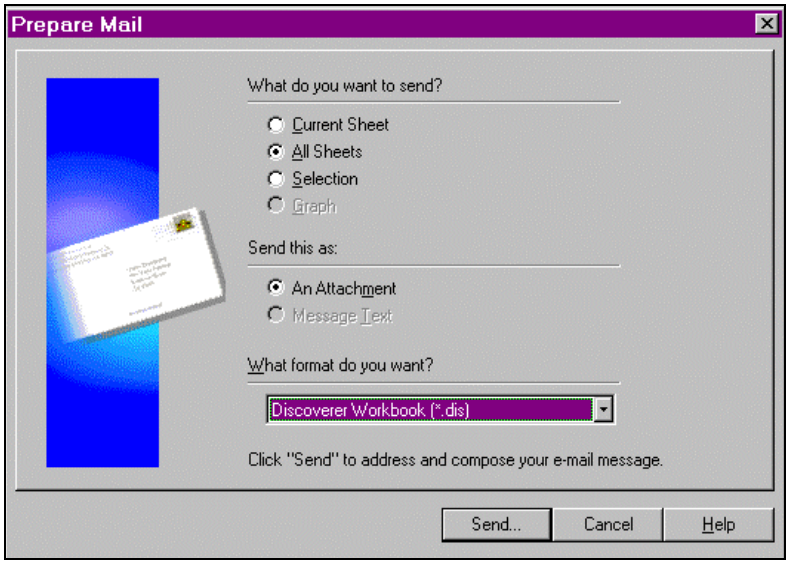


Figure 7. Send reports as an attachment or in the message body of a mail message

Flexible Exploration

The extensive drill functionality provides drill between items, drill up and down hierarchies, the unique ability to drill from summary to detail data as well as drilling out to external applications that compliment the data being viewed.

Just-in-time Drilling

Use Discoverer's unique concept of Just-in-time drilling to retrieve only the information you need, at the time you need it. Conditional drills allow retrieval of small, specific amounts of information -- improving performance and reducing network load.

Clearly see multiple levels of drill results using the most extensively tested interface available today. View data by year, quarter, country, region and multiple other parameters using one consistent interface.

Date Drills

Seamlessly drill from year to quarter to month and so on. Tight integration with the date structures from the database mean specific date columns do not need to be created to perform date exploration. In addition, date dimensions may be placed on different axis of a cross tabular report to provide greater flexibility when viewing data.

Expand Drills

Break out of the default hierarchy structures provided by the End User Layer by defining individual drill paths. Using the same consistent interface, choose the information you would like to see next and expand the data set to the next level of detail.

Summary to Detail Drills

Tools today provide the ability to drill through summarized data. Discoverer extends this in a unique fashion by seamlessly drilling from summary information to view detail transactions. See a profit increase in October 1996 in the East, and drill to the individual detail orders to find out why this occurred. (Figure 8).

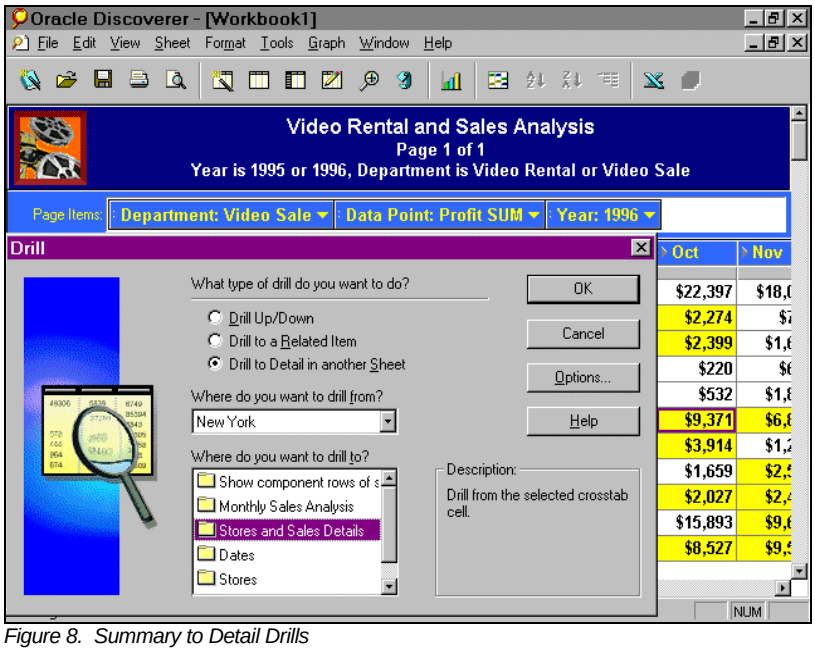


Figure 8. Summary to Detail Drills

Drill out

Extend the drill capabilities and drill out of your data to a supporting application such as a video clip, sound file, text file, word processor or spreadsheet file. For example, in a hospital, view patients' medical records, then seamlessly drill out to view the patient X-ray. This powerful extension provides users with open-ended capabilities to access additional information stored

outside any database structures. External files may be stored on the file system or in the Oracle database. (Figure 9).

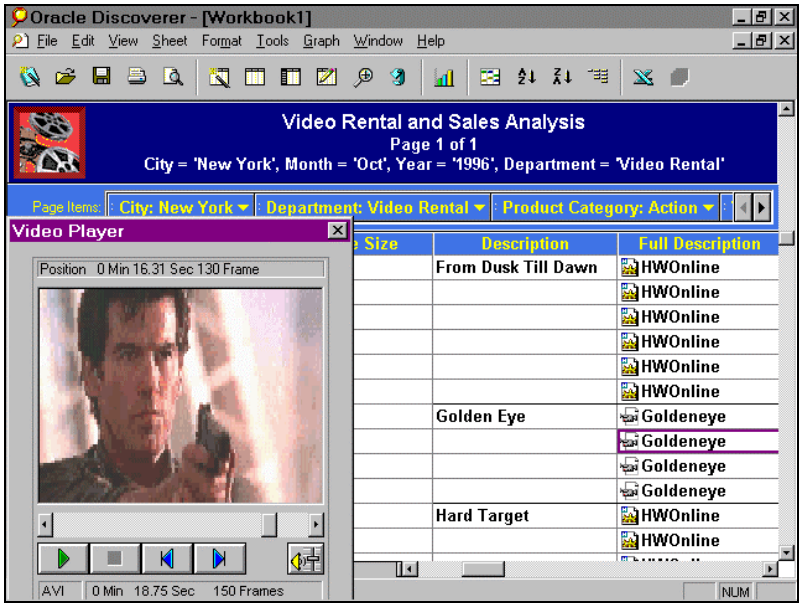


Figure 9. Drill out to supporting applications e.g. Video Clips

Business Graphing

View trends and anomalies in data by displaying them in graphical format. Create graphs using the intuitive graph wizard. Graph styles include area, line, horizontal bar, pie, surface, pareto, doughnut, scatter, column, cube, fit to curve, polar, and open-hi-low-close -- in two dimensional and three dimensional format. Graphs are dynamically linked to your results, allowing you to drill through the graph itself and immediately see trends and anomalies in your business (Figure 10).

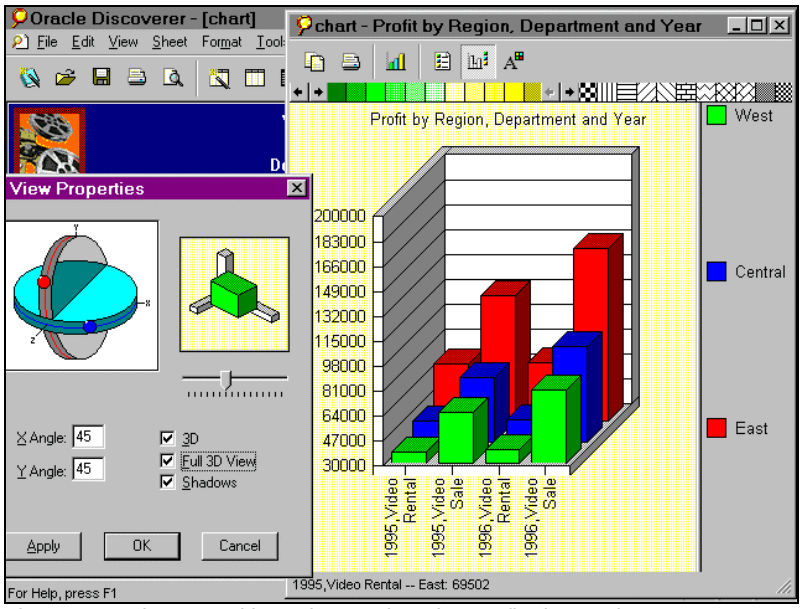
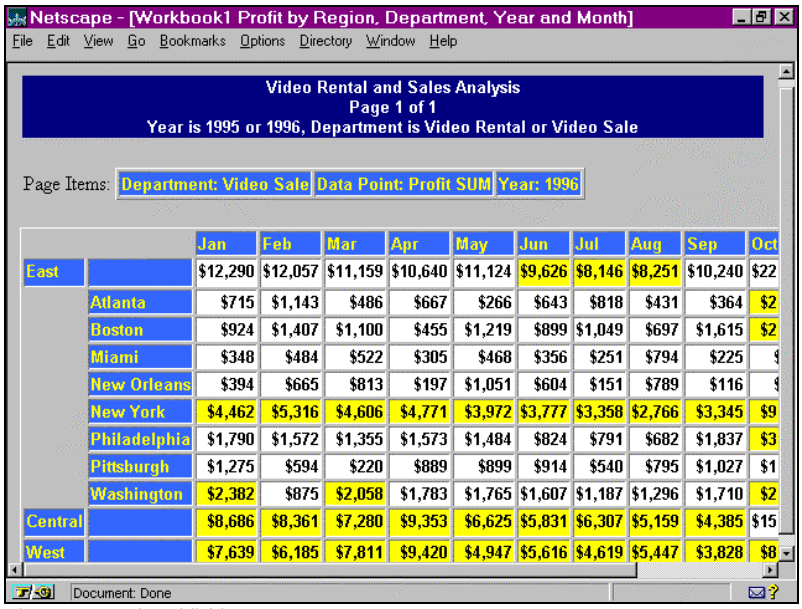


Figure 10. Business Graphing - View trends and anomalies in your data

Web Publishing

Publish final results from Discoverer workbooks in .HTML format. (Figure 11). Enable a wider audience in the organization to view results using a standard Web Browser e.g. Netscape Navigator, Microsoft Internet Explorer. Dynamic HTML may be generated via integration between Discoverer and Oracle Reports.



		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
East		$12,290	$12,057	$11,159	$10,640	$11,124	$9,626	$8,146	$8,251	$10,240	$22
	Atlanta	$715	$1,143	$486	$667	$266	$643	$818	$431	$364	$2
	Boston	$924	$1,407	$1,100	$455	$1,219	$899	$1,049	$697	$1,615	$2
	Miami	$348	$484	$522	$305	$468	$356	$251	$794	$225	
	New Orleans	$394	$665	$813	$197	$1,051	$604	$151	$789	$116	
	New York	$4,462	$5,316	$4,606	$4,771	$3,972	$3,777	$3,358	$2,766	$3,345	$9
	Philadelphia	$1,790	$1,572	$1,355	$1,573	$1,484	$824	$791	$682	$1,837	$3
	Pittsburgh	$1,275	$594	$220	$889	$899	$914	$540	$795	$1,027	$1
	Washington	$2,382	$875	$2,058	$1,783	$1,765	$1,607	$1,187	$1,296	$1,710	$2
Central		$8,686	$8,361	$7,280	$9,353	$6,625	$5,831	$6,307	$5,159	$4,385	$15
West		$7,639	$6,185	$7,811	$9,420	$4,947	$5,616	$4,619	$5,447	$3,828	$8

Figure 11. Web Publishing

Administration Edition - Minimal Setup and Low Maintenance

Use the new End User Layer Management Utility to rapidly create and delete both End User Layers and the Discoverer Tutorial via an intuitive wizard interface. (Figure 12.) The Administration Edition wizard interface is used to automatically populate the End User Layer, with the fast, one button load capability. Create and maintain multiple End User Layers to provide full data access and management flexiblity to the business user community. Group information into logical Business Areas within the End User Layer(s) to make data access easy and intuitive for business users.

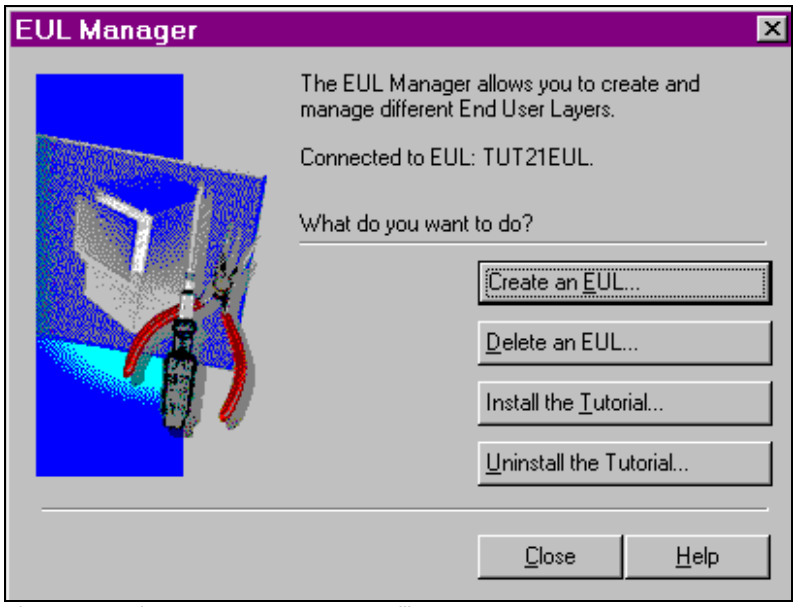


Figure 12. End User Layer Management Utility

Minimal Setup

Extensive defaulting enables business users to immediately start querying their data. Initial load provides *default* folder names and descriptions, item names and descriptions, list of values, join definitions, aggregation of data points and drill definitions. Reuse information held in the Designer/2000 repository or other meta data repositories via the End User Layer Gateway to automatically create Business Areas in the End User Layer. Reuse existing definitions held in previously created Business Areas to save time when creating new Business Areas.

Create composite folders to provide virtual views of information which inherit formula changes from the base folders and provide users with a simpler view of the business. Create folders based on free-hand SQL to provide greater data access flexibility and to support for set operators e.g. Union, Minus; to support Synonyms, Optimizer Hints and even Connect By' clauses. (Figure 13). Reduce the complexity of data structures by pre-defining complex formulae and storing them as calculated items.

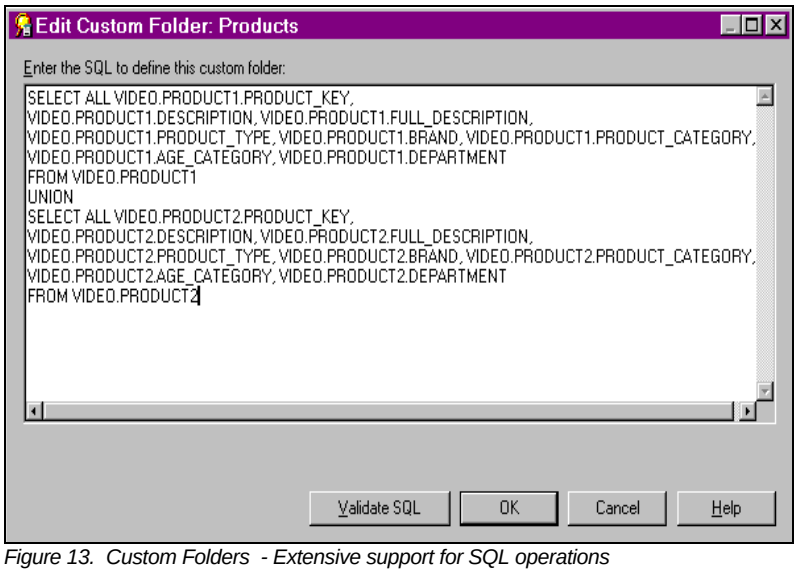


Figure 13. Custom Folders - Extensive support for SQL operations

Low Maintenance

Use the database server to provide a centralized, secure repository for business definitions in the End User Layer. Efficient multi-user access and the scalability of the server protect your investment in Oracle technology. Use native database security to provide user access control - thus saving administration time and reducing security concerns. Rapidly synchronize changes in the database with the End User Layer using the Refresh utility.

Full Resource Control

The Administrator has full control over the business user environment. Define default resource governing limits for users based on the number of rows returned from a query, the elapsed time of a query, the query prediction warning threshold and even resource governing system profiles. For batch operations, control, on a per user or public basis, the number of reports retained, the default expiration time for reports, the time period within which users are allowed to run reports and whether users are only allowed to run reports in batch. Grant access to specific elements of User Edition functionality using the privileges dialog. Provide more flexible support for administering End User Layers and Business Areas using the privileges dialog.

Advanced Summary Management

Collect statistics to identify aggregated queries that users perform on a frequent basis. Automatically generate summaries based on query statistics (Figure 14). Use the unique features of the summary wizard to create and *automatically* maintain summary tables to vastly improve performance. Use the summary wizard to register existing summary tables to ensure the User Edition can exploit these summaries when running queries, using the powerful automatic summary redirection capabilities.

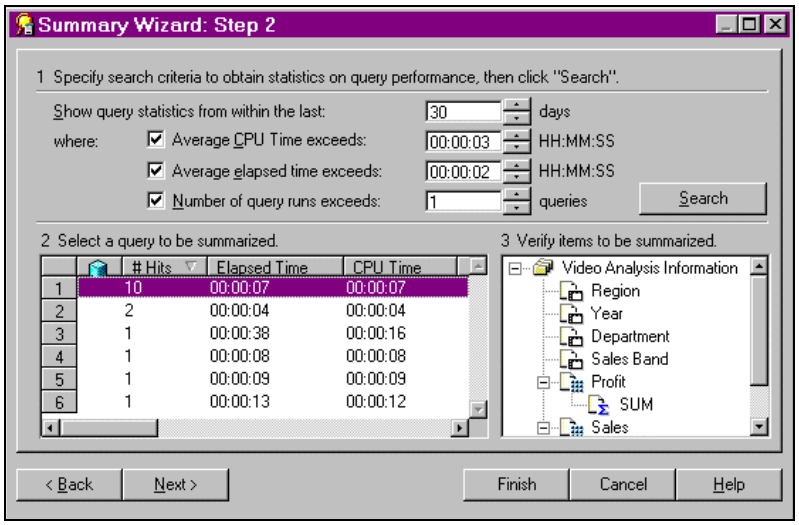


Figure 14. Summary Wizard - Create and Automatically Maintain Summary Tables from Query Statistics

Oracle Integration

Leverage your investment in other Oracle products. Discoverer can automatically load semantic data from Designer/2000 into the End User Layer. Integration with the Oracle kernel provides support for role based security, resource profiles, query prediction, batch/scheduled reporting, access to external data such as video clips, word documents etc. stored in the database and

automatic summary table creation and maintenance. Export Discoverer workbooks to Oracle Reports .RDF or .PDF format. Automatically publish dynamic web reports utilizing the Oracle Reports Server. Use customized Business Areas and views to rapidly access Oracle Applications data with minimal setup and maintenance. Create customized Business Areas to provide business user access to any Oracle based application.

Open Access

Enable meta data held in third party Extraction Transformation tools and query tools to be the source of business area definitions using the End User Layer Gateway. Oracle Discoverer is OLE2 compliant which enables data transfer between familiar desktop tools such as Microsoft Word and Microsoft Excel. Export data to common file formats, for example, XLS, TXT, HTML, PRN, to enable information exchange between common desktop tools. Access non-Oracle databases using ODBC. Install the End User Layer on an ODBC compliant database. Access Rdb data using native database drivers. Send reports to other users via a MAPI compliant email client.

Migration from Discoverer/2000™

Immediately take advantage of Discoverer's enhanced functionality by effortlessly migrating existing End User Layer definitions from Discoverer/2000. Existing queries defined using Discoverer/2000 can be easily imported as a Discoverer Workbook.

Platforms

Discoverer is available on Windows 3.1, Windows95 and WindowsNT. Access to other platforms is available via WebDiscoverer™ -- the NCA compliant Web release of Discoverer.

Oracle Discoverer™ Release 3.1 - Key Features

User Interface

- Developed in C++ and designed for Windows95 and WindowsNT
- Windows 3.1 port also available
- Single interface for ad hoc query, reporting, graphing, drill down analysis and web publishing
- Build ad hoc queries through the wizard interface
- Administer the End User Layer through the wizard interface
- On-line help, cue cards and interactive industry specific quick tours : Retail/Restaurant, Telecommunications, Healthcare, Government
- Incorporates advanced features of Windows95 : drag and drop, right mouse button shortcuts, long filenames and extensions, toolbar hints.

Query Functionality

- Graphical query builder
- Automatically identify related data
- Define selection criteria (conditions or filters)
- Combine conditions using logical operators
- Nest conditions
- Sort rows in any order
- Group data automatically
- Use parameters with default values
- Join related data automatically (equi, non-equi, self and outer joins)
- Create calculated items (user defined expressions)
- Define Percentage of Total
- Support for subqueries
- Support for summary totals (avg, min, max, sum, count, stddeviation*, variance*)
- Include or exclude duplicate rows
- Use Oracle7, Oracle8 and ODBC user defined SQL functions
- Schedule queries to run in batch mode, freeing client resources *
- Control the number of rows returned by a query
- Control the amount of time spent running a query
- Predict the amount of time a query will run before it executes *
- Automatic summary redirection (summary awareness)

Query Management

- Save workbooks in the database *
- Save workbooks to the file system
- Save worksheets to a number of different common desktop file formats
- Share workbooks with other business users *
- Schedule workbooks to run on a predefined date and time *
- View and Delete scheduled workbook results *
- Expire scheduled workbook results after a number of days *
- Define how many copies of a scheduled workbook to retain *
- Administrator controls maximum amount of database resource users have to run queries both on-line and in batch
- Add descriptive properties to workbooks
- Preview query results

- Print query results
- Send query results using a MAPI compliant email system

Report Building and Formatting

- View your results online with the WYSIWYG workbook
- Default layout style
- Create a variety of reports, including:
  - *Tabular*
  - *Summary and Group Sort*
  - *Cross Tabular or Matrix*
  - *Master-Detail*
- Resize displayed columns
- Reorder displayed columns
- Specify multiple line page headers and footers
- Specify variables in worksheet title, headers and footers e.g. Page number, Total Pages, Date, Time, File name, Sheet name, Axis Items, Conditions, Parameters
- Include bitmaps in a worksheet title or as the background for a worksheet
- Specify page formatting - headers, footers, margins, print direction, grid lines, scale to page, horizontal & vertical positioning
- Place embedded parameters in title page, headers and footers
- Format data using default or custom format masks depending on data type
- Create global formatting information for all users
- Format column headings and data using different font styles, sizes, foreground and background colors, strikeout and underline
- Create exception bands on ranges of data
- Create totals, conditional filters, parameters and percentages

Flexible Exploration

- Place any number of dimensions on the row or column axes
- Perform automatic drill down and drill up analysis between items
- Perform automatic drill down and drill up on date periods (year, quarter, month, week, day, hour, minute)
- Automatically navigate database hierarchies
- Perform expanded or replace drills
- Perform conditional (filtered) or unconditional drills
- Perform summary to detail (Hyperdrill) drills
- Perform drill out to supporting applications e.g. Video Player (Hyperdrill Plug-in)
- Pivot axes (dimensions) in cross tabular reports to see different dimensions of data
- Perform drill down from business graphs

Business Graphing

- Maintain focus with current worksheet
- Use Oracle Discoverer Graph Wizard to create :
    - *Two and three-dimensional graphs*
    - *Stacked and Clustered graphs*
    - *Area graphs*
    - *Line graphs*
    - *Point graphs*
    - *Bar graphs*
    - *Horizontal Bar graphs*
    - *Pie graphs*
    - *Surface graphs*
    - *Pareto graphs*
    - *Doughnut graphs*
    - *Scatter graphs*
    - *Cube graphs*
    - *Polar graphs*
    - *Fit to Curve graphs*
    - *Open - Hi-Low-Close graphs*
- Set horizontal and vertical grid lines
- Define color schemes, font styles and sizes
- Define scale for Y axis
- Set full rotation and shadow on three dimensional graphs
- Set graph titles on top, bottom, left and right of screen
- Set axis focus automatically for rows and columns

Web Publishing

- Save workbook or worksheet results as static .HTML format
- Using Oracle Reports, save worksheet results as .PDF and dynamic HTML format
- Drill through all paths defined in the workbook (including summary to detail drills)

Security

- Protect your data with read-only access
- Run queries online or via a scheduled batch operation
- Control online queries with both reactive and predictive * query governing
- Use database roles and resource profiles to simplify security administration *
- Runtime only option prevents users from developing queries
- Batch only option prevents users from developing and running queries online *
- Set default user preferences

Administration

- Fast bulk load of database tables and views
- Access design information from Designer/2000 *
- Access external meta data using the End User Layer Gateway
- Migrate BusinessObjects® Universe definitions automatically to the End User Layer.
- Control access to database objects using native database security both for Oracle and ODBC
- Exploit Oracle7 and Oracle8 roles and security *
- Define Business Areas for logically grouping information
- Create complex folders for creating virtual views of data and hiding complexity from business users
- Create derived items to hide complex SQL expressions and dynamic objects
- Create and maintain automatic join conditions and drill relationships
- Maintain default folder names, item names, headings and default formatting
- Create alternative sort sequences for user data
- Automatically create lists of values for items
- Create and automatically maintain summary tables either manually or based on historical queries *
- Use externally managed summary tables
- Full control of database and system resources : resource profiles *, user privileges, expiration time on scheduled workbooks *, maximum number of copies of scheduled workbooks *, maximum number of rows and time to retrieve workbook data, user access through database userids and roles *
- Make workbooks available to all users via database storage *

Integration

- Access non-Oracle databases through Oracle Gateway technology and ODBC
- Access external meta data using the End User Layer Gateway
- Use DDE to cut and paste (link) query results to other applications using the clipboard
- Save worksheet results to WKS, DIF, SYLK, TXT, PRN, CSV, XLS, HTM, RDF (Oracle Reports), PDF and Oracle Express format files
- Send workbooks as attachments or include worksheet data in the body of a mail message via a MAPI compliant mail client.
- Access external applications stored in LONG RAW columns in the Oracle database
- Export and Import SQL statements

Performance

- Retrieve partial results
- Multi-row fetch using array interface
- Sort and format data locally using the memory efficient client side cubic cache
- Select automatic or manual query execution

* indicates some features will not be available when accessing an ODBC database.